February 16, 2005

MEMORANDUM

TO: Mark Mason, P.E.
Wastewater Program

FROM: John Tindall, P.E.
Staff Engineer

SUBJECT: **Staff Analysis for Stoneridge Utilities Wastewater Land Application Permit, LA-0000017-03 (Municipal Wastewater)**

Purpose:
The purpose of this memorandum is to satisfy the requirements of IDAPA 58.01.17.400.04 (Wastewater Land Application Permit regulations) for issuing wastewater land application permits. The principal facts considered in preparing the draft permit conditions are presented with a summary of the basis for the draft conditions.

Process and Site Description:
Stoneridge is a development mainly consisting of condominiums, residences and a golf course. The development is located about 1 mile east of State Hwy. 41 near the community of Blanchard, Idaho. The wastewater treatment plant (WWTP) and land application site are located on the south end of the development near Poirier Ranch Road.

Raw wastewater is routed to the WWTP that was constructed in 1979. The WWTP is a package plant (Pure Stream Model II D 28) which treats the wastewater through a primary clarifier, a rotating biological contactor (RBC) and secondary clarifier. Sludge is pumped to an aerobic digester/holding tank and periodically removed. Chlorine disinfection occurs in a 1,088', 12" line that discharges into the 18 million gallon (lined with 80-mil HDPE) storage lagoon constructed in 2003. The WWTP design capacity is estimated to be 16 million gallons annually (MGA) or about 43,800 gallons per day (gpd). The current flows, presented in the 2003 "Annual Report", are 8.8 MGA or about 24,000 gpd.

The new 18 million gallon storage lagoon was designed to store wastewater from October to May for the estimated 20-year design flow of 31.5 MGA.

The new land application site will be located south of the WWTP, across Poirier Road. Wastewater will be pumped to the site from the storage lagoon. The disinfection limits will be met prior to discharging into the storage lagoon and additional disinfection will not be required prior to land application on the site (see IDAPA 58.01.17.600.07.e. that allows the disinfection limit to be met "at some location in the treatment process").

The proposed land application site is a tree farm and Ponderosa Pines are the predominant species. Stoneridge has leased a total of 80 acres for 20 years from the land owner, the Poirier Family. Initially, 27.5 acres will be required to irrigate the 16 MGA flow. Most of the trees on the 27.5 acre site are less than 6 feet tall and about the same age. The important features bordering the proposed site are as follows: to the west and south, there is additional tree farm property owned by Mr. Poirier; to the east, there are two homes (one 300' and the other 500' from the proposed site); and to the north there is a county road (Poirier Ranch Road) and the Stoneridge Motor Coach Park (about 350' from the area to be irrigated). The proposed site does not appear to have been well maintained as a tree farm and an updated silviculture plan will need to be prepared. Topics to be covered in the silviculture plan include how the tree

production can be maximized to best utilize the wastewater applied and noxious weed control. The silviculture plan will need to be reviewed and approved by DEQ. After the plan is approved, it will be incorporated by reference as a permit requirement.

Summary of events:
The original wastewater land application permit was issued 1989 and administratively extended through 1996. A permit renewal application was submitted in January 1995 to irrigate on the Stoneridge Golf Course. A "Staff Analysis" and draft permit were prepared by Jim MacInnis of DEQ in April 1997. A final permit was never issued. Stoneridge discharged the effluent from the WWTP into an unlined lagoon that allowed infiltration to be the method of effluent disposal until the new storage lagoon was completed in December 2003.

A Voluntary Consent Order was entered into between the DEQ and CDS Stoneridge Utilities, LLC on April 25, 2003 to correct the wastewater problems. Stoneridge is meeting the conditions of the Order which included submittal of an application for a Wastewater Land Application Permit (submitted 3/31/04). This permit is being written based on that application.

The facility upgraded facility (with new disinfection and the storage lagoon) was inspected on 6/4/04. The lagoon was filled about 5' deep out of the 18' available. The disinfection results for total coliform were all less than 2 /100 ml. up to that time.

Annual reports are submitted. A variety of influent and effluent sampling is done annually to evaluate the operation of the WWTP. Land application will probably start in the 2005 season and this permit will focus on parameters to be monitored specifically for land application. The performance of the WWTP will need to be monitored by the Stoneridge staff to assure that the disinfection limits can be met. A malfunction of the mechanical WWTP has a high potential of sending partially treated wastewater to the storage lagoon and the disinfection system may not be adequately handle the lower quality effluent.

Discussion:

Relevant issues concerning site conditions, data, and historical and proposed management for purposes of determining permit conditions.

- **General Site Characterization**: The proposed land application site is a tree farm with predominant species being Ponderosa Pine. The appropriate tree spacing will need to be evaluated in the silviculture plan and ground cover (weeds and grasses) will need to be controlled. Most of the site has slopes ranging from 0% to 10%. About 5% (1.4 acres) of the site contains slopes between 10% to 20%. These areas will need to be monitored closely when land applying to assure that run-off does not occur. There are no rock outcroppings. Until 1996, the site was used for hay production and cattle grazing.

- **Soils and Topography**: Soils on the site are predominately Kaniksu sandy loam with areas of Elmira loamy sand to the south and west as described in "Soil Survey of Bonner County, Idaho". These soils are formed from glacial outwash material. They are deep and well drained. Permeability is moderately rapid to a depth of 19 inches and rapid below this depth. The effective rooting depth is 60 inches or more. The soil is suited to crops that require irrigation. Irrigation water should be applied lightly and frequently. If it is assumed that maintaining soil moisture between 25% to 75% of the "available water capacity" (estimated at 6" for both soils) is optimum, the useable soil "reservoir" is 3".

- **Ground Water**: The wastewater treatment site and land application site are presumed to be over the Spokane Valley-Rathdrum Prairie Aquifer and protection of this ground water source as a drinking water supply is critical. From an evaluation of well logs in the area, it appears that the depth to groundwater under the site is between 70' to 100'. The closest public wells are about 0.5 miles to the north (Stoneridge) and the community of Blanchard well is about 1 mile to the northeast. The static water level for the Stoneridge wells is about 100' and the Blanchard well is about 123'. A private well owned by Poirier (the owner of the proposed land application site) is located 500' from the east boundary of the site. The well log shows the static water level at 68' below the ground surface and the total well depth is 108'. The direction of ground water flow through the area is estimated to be northeast to southwest (see the 1/15/02 "Stoneridge: Source Water Assessment Report" prepared by DEQ).

  Wastewater land application over the Spokane Valley-Rathdrum Prairie Aquifer, an EPA designated sole source aquifer, is guided by Ch. 15.14 of the DEQ "Guidance for Land Application of Municipal and Industrial Wastewater - October 2004", *Land Application of Wastewater Over the Spokane Valley-Rathdrum Prairie Aquifer*. This guidance has been used in defining the permit limits and monitoring requirements for this facility. Specifically, a "1 in 10 year" recurrence period was used for the design precipitation to size the storage lagoon and land application site. In addition, soil moisture probes will be used to determine if irrigation can occur on a given day.

  Ground water monitoring has been considered for this site. Stoneridge would prefer to not install a ground water monitoring network due to the expense. There should be a low risk of ground water contamination considering the proposed hydraulic loading rates and the use of soil moisture probes for day-to-day operation. Inorganic fertilizer applications will typically not be needed to grow the trees so the leaching of nitrates from excessive fertilization is not likely to be an issue. Soil monitoring data will also provide an indication of any potential problems that could be impacting the ground water. Staff proposes that this permit be written without ground water monitoring and during the development of the next permit, the data be evaluated to determine if there has been adequate protection.

- **Surface Water Considerations**: The nearest surface water is Poirier Creek, an intermittent stream located along the eastern boundary of the site. Wastewater will not be applied within 100' of the creek channel.

- **Proposed Site Loading and Related Permit Recommendations**:
  The proposed 27.5 acre tree farm site is part of a 220 acre tree farm owned by Fielden (Sonny) Poirier. The main tree species is Ponderosa Pine. Supplemental irrigation is currently not provided for the trees. Prior to being used as a tree farm in the late 1990s, the site was used for hay production and cattle grazing.

  Hydraulic Loading Rates: Application on the site is proposed between May 1 to September 30 each year.

  The following table shows the maximum allowable hydraulic loading rates:

Table 1
Maximum Allowable Hydraulic Loading Rates for Site

Land Application Area	Net Irrigation Requirement[1] (IR)	% of IR Allowed Due to	Irrigation Efficiency[3]	Adjusted Irrigation Requirement	Volume of Irrigation Water	Volume of Irrigation Water

(acres)	(inches)	Slope Limits[2]		(inches)[4]	Required (ft^3)[5]	Required (gallons)[6]
27.5	1.43- May	100%	80%	1.78	177,689	1,329,114
27.5	3.52 - June	100%	80%	4.40	439,230	3,285,440
27.5	6.62- July	100%	80%	8.27	825,553	6,175,136
27.5	4.91- August	100%	80%	6.13	611,927	4,577,214
27.5	2.93- Sept.	100%	80%	3.66	365,360	2,732,893
TOTALS				**24.24**	**1,698,623**	**18,099,797**

Notes:

1. From Kimberly/Univ. of Idaho website (Bayview Station, orchard crop) using the Allen and Brockway method. An "orchard crop" is the closest match to the forested site.
2. Irrigation on the slopes greater than 10% will need to be monitored for run-off.
3. The irrigation system consists of solid-set piping with impact heads. In Table 3, Ch. 4.1 of the DEQ publication, "Guidance for Land Application of Municipal and Industrial Wastewater - October 2004", the range of irrigation efficiencies is 60-85%. 80% would a typical value.
4. IR * (% of IR Allowed) / Irrigation Efficiency
5. Area * 43,560 * Adjusted IR / 12
6. Volume of irrigation water required * 7.48

The estimated year 2010 wastewater generated is 16 million gallons (MG). In preparing the water balance for these projected flows, the consultant used monthly precipitation records to calculate a "1 in 10 year" recurrence interval. Design of the storage volumes required and estimated land application rates using this assumption appear to be reasonable. Accounting for precipitation entering the lagoon, the estimated total amount of wastewater to be land applied in 2010 is 17.55 MG.

As shown in Table 1, the total hydraulic loading theoretically required by the trees is 18.1 MG gallons during the application season.

Nitrogen and Phosphorous Loading:

Table 2
Maximum Allowable Nutrient Loading Rates

Total Nitrogen Uptake [1] (pounds per acre, annual average)	**Annual Total Nitrogen Permit Limit at 125% of uptake** [2] (pounds per acre)	**Phosphorous Uptake** [3] (pounds per acre, annual average)	**Annual Phosphorous Permit Limit at 125% of uptake** [3] (pounds per acre)
80	100	20	25

Notes:

1. From Ch. 4.2 and Table 26, Ch. 7.6 of the DEQ, "Guidance for Land Application of Municipal and Industrial Wastewater - October 2004". To be conservative, the lower limit of the range was selected.
2. Calculation from Ch. 4.2 of the DEQ, "Guidance for Land Application of Municipal and Industrial Wastewater - October 2004". Even though the wastewater application period is only between June and September, the total annual value has been used because the nutrients would remain in the soil and uptake would continue after the applications stopped.
3. From Ch. 4.8 in the DEQ, "Guidance for Land Application of Municipal and Industrial Wastewater - October 2004".

Nitrogen and phosphorous data has been collected by the facility. In 2003, total nitrogen averaged 20 mg/l and phosphorous averaged 5 mg/l as measured in the effluent from the WWTP. Further nitrogen reduction will occur in the storage lagoon and in the land application delivery system mainly through volatilization of ammonia. Assuming 20% of the nitrogen is lost, the total nitrogen applied would be 2,135 lbs. Phosphorous reduction is not assumed to occur after leaving the WWTP.

COD Loading:

This parameter has not been tested in the effluent from the WWTP. The BOD for 2003 varied between 4 to 28 mg/l. After additional detention time in the storage lagoon, the BOD will be further reduced. The COD applied to the site will be estimated at 50 mg/l. This value is not expected to change over the 5-year period covered by the new permit.

Loading Summary:

Table 3 compares loading limitations to estimated loadings at the end of the 5-year permit period:

Table 3
Loading Comparison

Parameter	Limitation	Estimated(in 2010)	Comments
Maximum Monthly Hydraulic Loading	May – 1,329,114 gals. June – 3,285,440 gals. July – 6,175,136 gals. Aug. – 4,577,214 gals. Sept.– 2,732,893 gals.	May – 1,290,000 gals. June – 3,180,000 gals. July – 5,980,000 gals. Aug. – 4,440,000 gals. Sept.– 2,650,000 gals.	Wastewater application volume will be approximately 97% of the theoretical total irrigation requirement to sustain trees
Chemical Oxygen Demand (COD)	50 pounds/acre-day based on a yearly average [1]	0.7 pounds/acre-day based on a yearly average	Based on 50 mg/L COD, 16 MG over the153 day season and 27.5 acre application site
Nitrogen	100 pounds/acre-year [2]	78 pounds/acre-year	Based on 2003 test results w/20% loss (2,135 lbs. of TN) and 27.5 acre application site
Phosphorous	25 pounds/acre-year [2]	24 pounds/acre-year	Assume 5 mg/l TP, 16 MG and 27.5 acre application site.

Notes:

1. COD limit from Ch. 4.3 of the DEQ, "Guidance for Land Application of Municipal and Industrial Wastewater - October 2004".
2. Refer to Table 2 above for limits

- **Soil Considerations**: The new permit will have some soil monitoring requirements to conform with the current standard permit conditions.

- **Buffer Zones:** Table II in Ch. 6.5 of the DEQ, "Guidance for Land Application of Municipal and Industrial Wastewater - October 2004"sets forth the buffer zone requirements for municipal wastewater application sites. The site currently has the following characteristics:
  1. Degree of Treatment: Raw wastewater is treated through the mechanical WWTP described previously. The effluent is chlorinated prior to entering the storage lagoon and there is adequate contact time in the connecting pipe to consistently meet a total coliform limit of less than 23/100 ml.
  2. Location: Rural
  3. Mode of Irrigation: Buried laterals, above-ground irrigation with sprinklers set at 100' spacings.
  4. Buffer Zone: The nearest existing homes will be a RV Park about 350' to the north. The closest existing public access (Poirier Road) is approximately 250 feet away.
  5. Fencing Type: The entire spray irrigation site is proposed to be fenced with 3-wire pasture fence.

6. Posting: The site will be posted.

Due to the nearest home being less than 1,000' from the site, the total coliform requirement based on Table 3 will be less than 23/100 ml. (secondary disinfection- Scenario G).

As proposed, the application site will be in compliance with buffer zone requirements and the disinfection system is capable of meeting the disinfection limit of 23/100 ml. total coliform.

- **Solids Management**: Sludge is removed from the sludge holding tank. In 2003, 4,000 gallons per month was being removed and hauled to the city of Spokane WWTP. It is not likely the storage lagoon will ever need to have sludge removed.

- **Lagoon Leakage Testing**: The storage lagoon was leak tested in October 2004 using the DEQ approved procedure and it passed. The next leak test should be done prior to the expiration of this permit.

RECOMMENDATIONS

A. Proposed "Operating Requirements" in new permit:

1. Hydraulic loading of the irrigation site will be the limiting factor. The 27.5 acre site will be divided into four (4) irrigation zones of approximately equal area. The maximum seasonal amount that can be applied is 18.1 MG. Monthly hydraulic loading limits for the site will be included in the permit.
2. Limit the application period to between May 1 to September 30.
3. The four zones are to be irrigated sequentially through the day. At the estimated flows for 2010, the zones would be irrigated between 1.5 hours (May) and 2.3 hours (July). The days per month that irrigation would occur varies between 7 days/month (May) to 21 days/month (July and August). The daily application rates will vary between 0.25"/day (May, June and September) and 0.38"/day (July). At these rates, ponding or surface run-off is not likely to occur based on the estimated permeability of the soils. Soil moisture probes will be installed in each zone at shallow and intermediate depths to determine if irrigation can occur. A threshold value of 10 centibars will be used to determine if the site can receive any additional water without causing gravity drainage to allow water to migrate past the root zone.
4. Total coliform limits will be the median value of the last five (5) results must not exceed 23/100 ml. In addition, no single sample value shall exceed 240/100 ml. Disinfection and compliance occurs at the end of the chlorine contact pipe and prior to entering the storage lagoon instead of in the irrigation system prior to the first sprinkler head. Based on the requirement for weekly sampling of the wastewater during the land application season, there are 22 full weeks between May 1 and September 30 (the permitted application season). Considering the seasonal flow patterns at Stoneridge and collecting a minimum of 22 total coliform samples during the year, monthly samples should be taken in November and December (2 samples) and samples taken every two weeks from January to October (20 samples).
5. Limit land application of COD to 50 pounds/acre-day. This formalizes a guideline that is a standard requirement in recent permits. The analysis indicates that the operation can conform to this limitation. No testing for this parameter will be required because the anticipated loading is only 0.7 lbs./acre/day.
6. Limit nitrogen application to 125% of typical crop uptake in pounds/acre-season from wastewater and non-water sources. Recent permits impose nitrogen application limits to ensure groundwater protection. The analysis, based on minimum nitrogen requirements for an trees, indicates that the operation should be able to conform to this limitation. The silviculture plan

should make recommendations on the nitrogen requirements of the trees. The wastewater and soil will be monitored for nitrogen as part of the new permit.

7. The analysis indicates that the phosphorous applied in the wastewater will be less than the calculated demand of 125% of the typical tree uptake. The wastewater and soil will be monitored for phosphorous as part of the new permit. Soil results will be analyzed during the next permit issuance to determine if the recommended phosphorous guidance limits from Ch. 4.8 of the DEQ "Guidance for Land Application of Municipal and Industrial Wastewater - October 2004" are met.

B. Proposed "Monitoring Requirements" in new permit:

1. Wastewater:
   - Total influent flow to WWTP – Daily and monthly.
   - Total effluent flow from WWTP to storage lagoon – Daily and monthly.
   - Total chlorine residual concentration – 5 days per week downstream from chlorine contact chamber and upstream from storage lagoon when discharging to the storage lagoon.
   - Total Coliform – As explained previously, monthly samples should be taken in November and December (2 samples) and samples taken every two weeks from January to October (20 samples). Samples to be collected downstream from chlorine contact chamber and upstream from storage lagoon.
   - Total Kjeldahl nitrogen (TKN), nitrate+nitrite-nitrogen – Monthly at sample tap upstream from first sprinkler head and downstream from storage lagoon, when land applying (frequency per Ch. 7 of the DEQ "Guidance for Land Application of Municipal and Industrial Wastewater - October 2004").
   - TDS – Not required. Secondary domestic wastewater that will not have significant amounts of TDS.
   - COD – Not required. Secondary domestic wastewater that will not have significant amounts of COD (see Table 3).
   - pH – Not required because it is domestic wastewater.
   - Total Phosphorous – Monthly at sample tap upstream from first sprinkler head and downstream from storage lagoon, when land applying (per Ch. 7 of the DEQ "Guidance for Land Application of Municipal and Industrial Wastewater - October 2004").
2. Irrigation Site Monitoring:
   - Soil Moisture Probes – Daily prior to starting irrigation in any zone that will be irrigated. Soil moisture probes will be monitored on a daily basis during the irrigation season to minimize the leaching of wastewater below the root zone. They will be installed and utilized similar to what is currently being done at the Hayden Area Regional Sewer Board wastewater land application system. There will be four (4) "hydraulic management units" (HMU) (#1-#4) all with the same crop (Ponderosa Pine trees) and irrigation systems. Each HMU will have separate probes. Moisture will be monitored in the 'A' (shallow- about 12" to 16" depth) and 'B' (intermediate- about 24" to 30" depth) horizons at each site. Monitoring sites must be located to provide representative data. For daily wastewater application, soil moisture instrumentation shall be used to determine application rates and frequency. The soil moisture threshold is 10 centibars. Staff recommends that if either the shallow or intermediate depth probes have readings of less than 10 centibars in the monitoring sites within a HMU, irrigation in that HMU cannot occur. Threshold values wetter than 10 centibars (less than 10 centibars) may be approved by the Department if satisfactory scientific evidence is present that wetter soil conditions will not increase wastewater movement past the root zone.
   - Precipitation and temperature - Instruments shall be installed on the land application site to monitor precipitation and temperature and daily readings will be recorded during the application season.

- Irrigated area (acres)– daily notations of which HMUs were irrigated.
- Irrigation periods (hours)– daily and monthly recordings for each zone irrigated.
- Hydraulic loading of irrigated areas (gallons (daily and monthly) and inches (monthly)) for each zone.
- Total Nitrogen loading (lbs/acre) – annually.
- Total Phosphorous (lbs/acre) – annually.
- Soil Monitoring - In accordance with current standard permit monitoring requirements, soil monitoring will be required. Sample from 3 depths (0-12", 12"-24" and 24"-36") and 10 subsamples taken across the 27.5 acre site. Each depth is composited and three samples are obtained for analysis. Sampling required in the first and fifth year of the permit. Sample once in April or May prior to starting land application for the season again in October after land application is finished. Sample for electrical conductivity, nitrate-N, ammonium-N, pH and plant available phosphorous.

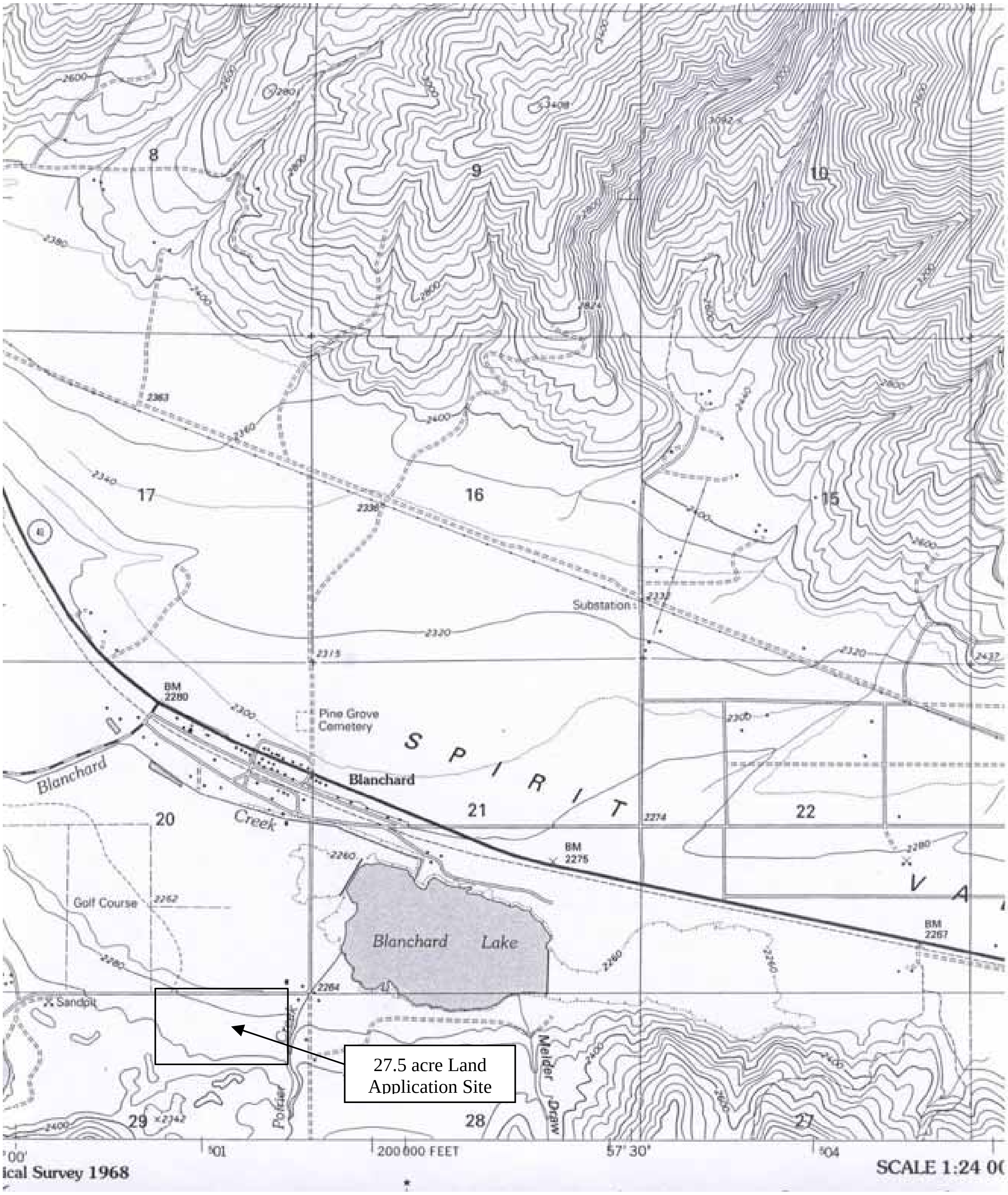
3. Ground Water Monitoring:
   - No ground water monitoring is proposed. Soil monitoring, wastewater monitoring and the use of soil moisture probes to control hydraulic loading rates will be used to evaluate potential impacts to ground water. Future permits could include ground water monitoring if there are indications impacts could be occurring.
4. Lagoon Leakage:
   - Perform a leakage test in accordance with the latest DEQ procedure on all the storage lagoon in the spring of 2009 when the lagoon is at the maximum level and prior to land application. Submit the results with annual report and in the permit renewal application.

REFERENCES

Allen, R.G. and Brockway, C.E., "Estimating Consumptive Irrigation Requirements for Crops in Idaho", University of Idaho, August 1983.

Idaho Department of Environmental Quality, "Guidance for Land Application of Municipal and Industrial Wastewater - October 2004".

Kimberly University of Idaho Evapo/Transpiration Rates, Bayview Station found at the following website- http://www.kimberly.uidaho.edu/water/appndxet/index.shtml .


8
9
10
17
16
15
Substation
Pine Grove
Cemetery
S P I R I T
V A
Blanchard
Blanchard
Creek
20
21
22
Golf Course
Blanchard Lake
Sandpit
27.5 acre Land
Application Site
Potter Creek
Melder Draw
29
28
27
200 000 FEET
57' 30"
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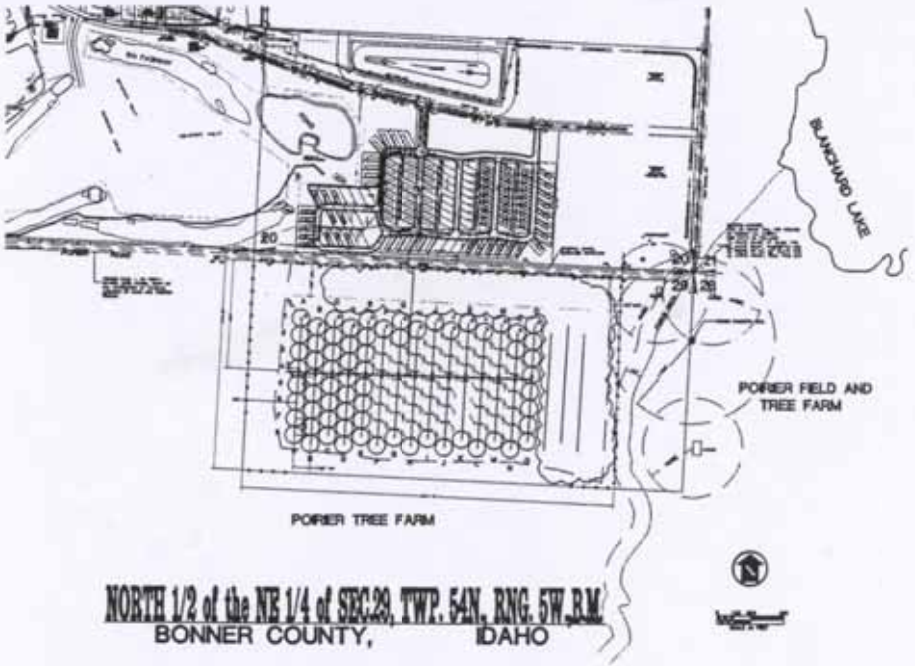
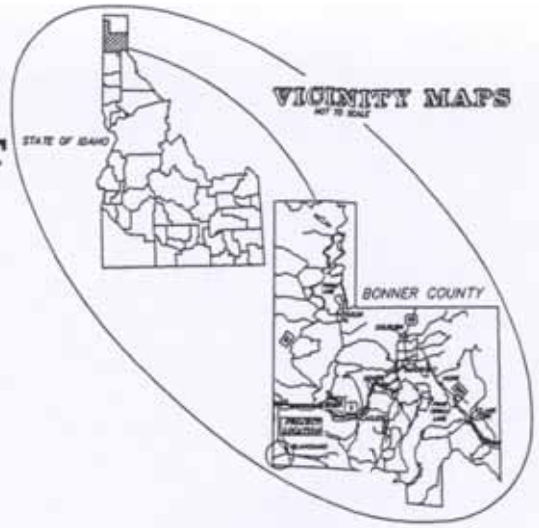
SCALE 1:24 0(

STONERIDGE
WASTEWATER LAND APPLICATION PROJECT



NORTH 1/2 of the NE 1/4 of SEC.29, TWP. 54N., RNG. 5W.B.M.
BONNER COUNTY, IDAHO

SITE MAP



PROJECT DEVELOPER:

STONERIDGE UTILITIES
P.O. BOX 280
364 STONERIDGE ROAD
BLANCHARD, IDAHO 83804

PROJECT ENGINEERS:

JAMES A. SEWELL AND ASSOCIATES
600 4TH STREET WEST
NEWPORT, WASHINGTON 99156

CALL 2 WORKING DAYS BEFORE YOU DIG! TOLL FREE 1-800-424-5555

WASTEWATER LAND APPLICATION DESIGN CRITERIA

DESCRIPTION	CRITERIA
ANNUAL EFFLUENT FLOW	18 mg
ANNUAL EVAPORATION	30.0 inch
ANNUAL PRECIPITATION ADJ.	29.4 inch
ANNUAL IRRIGATION REQUIREMENT (90% EFF-O-CHARD)	24.3 inch
LAGOON STORAGE CAPACITY	18 mg
PUMPING CAPACITY	550 gpm
MAXIMUM APPLICATION RATE	0.4 inch/day
NUMBER OF FIELDS	4 each
TOTAL AREA TO BE IRRIGATED	27.5 acres

DRAWING INDEX

SHEET #	DESCRIPTION
1	COVER SHEET
2	SITE PLAN
3	IRRIGATION SYSTEM - SITE PLAN
4	IRRIGATION SYSTEM - DETAILS
5	PUMPING SYSTEM - SITE PLAN
6	PUMPING SYSTEM - PUMP BUILDING
7	PUMPING SYSTEM - DETAILS
8	ELECTRICAL & CONTROLS

3713

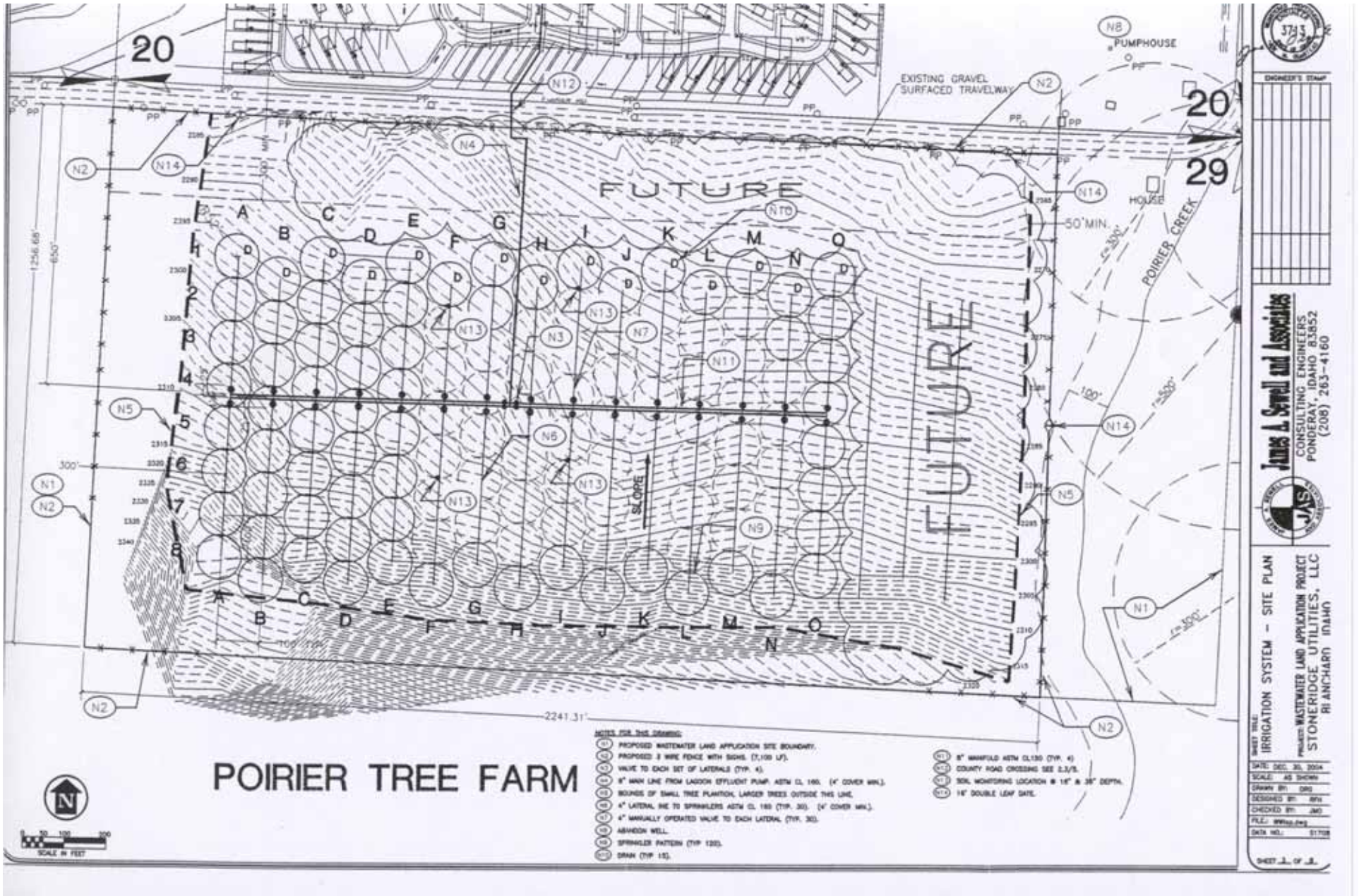
James A. Sewell and Associates
CONSULTING ENGINEERS
PONDERAY, IDAHO 83852
(208) 263-4160

SHEET TITLE: COVER SHEET
VICINITY MAP, DRAWING INDEX

PROJECT: WASTEWATER LAND APPLICATION PROJECT
STONERIDGE UTILITIES, LLC
BLANCHARD, IDAHO

DATE: DEC. 30, 2004
SCALE: AS SHOWN
DRAWN BY: DRG
DESIGNED BY: RPH
CHECKED BY: JAS
FILE: WWapp.dwg
DATA NO.: 51708

SHEET 1 OF 8


20
20
29
EXISTING GRAVEL SURFACED TRAVELWAY
PUMPHOUSE
HOUSE
POIRIER CREEK
50' MIN.
FUTURE
FUTURE
SLOPE
2241.31'
1256.68'
650'
300'
100'
POIRIER TREE FARM
SCALE IN FEET
NOTES FOR THIS DRAWING:
PROPOSED WASTEWATER LAND APPLICATION SITE BOUNDARY.
PROPOSED 3 WIRE FENCE WITH SIGNS. (7,100 LF).
VALVE TO EACH SET OF LATERALS (TYP. 4).
8" MAIN LINE FROM LAGOON EFFLUENT PUMP. ASTM CL 160. (4' COVER MIN.).
BOUNDS OF SMALL TREE PLANTION, LARGER TREES OUTSIDE THIS LINE.
4" LATERAL INE TO SPRINKLERS ASTM CL 160 (TYP. 30). (4' COVER MIN.).
4" MANUALLY OPERATED VALVE TO EACH LATERAL (TYP. 30).
ABANDON WELL.
SPRINKLER PATTERN (TYP 120).
DRAIN (TYP 15).
8" MANIFOLD ASTM CL150 (TYP. 4)
COUNTY ROAD CROSSING SEE 2.3/S.
SOIL MONITORING LOCATION @ 18" & 36" DEPTH.
16' DOUBLE LEAF GATE.
ENGINEER'S STAMP
James A. Sewell and Associates
CONSULTING ENGINEERS
PONDERAY, IDAHO 83852
(208) 263-4160
SHEET TITLE: IRRIGATION SYSTEM - SITE PLAN
PROJECT: WASTEWATER LAND APPLICATION PROJECT
STONERIDGE UTILITIES, LLC
RI ANCHARD IDAHO
DATE: DEC. 30, 2004
SCALE: AS SHOWN
DRAWN BY: DRG
DESIGNED BY: RPH
CHECKED BY: JMO
FILE:
DATA NO.: 51708
SHEET 1 OF 1